

REMARKS

This amendment is in response to the Official Action dated October 14, 2009. Claim 1 has been amended, claims 2-4, 6-12 and 15 remain canceled, and no claims have been added; as such, claims 1, 5, and 13-14, and 16 remain pending in this application. Claims 1 and 13 are independent claims. Reconsideration and allowance is requested in view of the claim amendments and the following remarks. These amendments add no new matter. However, the entry of the amendment after final is warranted, since the amendment merely corrects a minor informality.

Claim Objections

Claim 1 is objected to because of a minor informality. Applicant appreciates examiner's attention in this matter and has amended claim 1.

As such, Applicant respectfully request this objection be withdrawn.

35 USC § 103 Rejections

Claims 1, 5 and 16 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Sato (JP 07-014542, hereinafter referred to as "Sato '542") in view of McVey (US 4,464,603, hereinafter referred to as "McVey '603") and further in view of Kai et al (U.S. Pub. No. 2001/0048269, hereinafter referred to as "Kai '269"). Applicant respectfully traverses this rejection.

Claim 1 recites:

A discharge lamp comprising:

an electrode including:

a heater constituted of a coil portion and a first lead wire portion and a second lead wire portion that respectively connect the coil portion through a rear end of the coil portion, the heater having an electron emission material applied thereto; and

scattering-prevention member, which is a cylindrical sleeve whose both ends are open, for covering surrounding of the coil portion, said both open ends respectively facing the forward end and the rear end of the coil portion;

a sleeve lead wire, which is attached to said scattering prevention member at one end and to the heater at the other end; and

a connection-reinforcing member that has a first connection member for connecting the first lead wire portion, and a second connection member for connecting the second lead wire portion, while the first and second connection members integrated with each other by means of a coupling portion are separated from each other by cutting the coupling portion, each of the first and second connection members being composed of L-shaped plate member, wherein the connection-reinforcing member is supported by any one of the first and second connection members;

wherein in the electrode, the first lead wire portion is connected to a first lead-in wire and the second lead wire portion is connected to a second lead-in wire, said first and second lead-in wires being provided on two opposed ends of a glass tube in which a gas containing a light-emitting material is enclosed and to an interior of which fluorescent substance is coated;

wherein the coil portion is arranged vertically along a tube axis of the glass tube; and

wherein the coil portion is structured by a spiral wire with it being further wound spirally and without coming into contact therewith.

Sato '542 fails to disclose, teach or suggest "a scattering-prevention member, which is a cylindrical sleeve whose both ends are open, for covering surrounding of the coil portion, said both open ends respectively facing the forward end and the rear end of the coil portion."

Moreover, Sato '542 fails to disclose, teach or suggest "a sleeve lead wire, which is attached to said scattering prevention member at one end and to the heater at the other end; and a connection-reinforcing member that has a first connection member for connecting the first lead wire portion, and a second connection member for connecting the second lead wire portion, while the first and second connection members integrated with each other by means of a coupling portion are separated from each other by cutting the coupling portion, each of the first and second connection members being composed of L-shaped plate member, wherein the connection-reinforcing member is supported by any one of the first and second connection members."

Sato '542 discloses a discharge lamp where leads 5 and 5 of a couple are introduced from the both ends of the container 1, respectively, and has coil 6 which was wound spirally and formed in the shape of an abbreviated U character. The end of coil 6 is being fixed by spot welding in the state where turn the direction which is substantially in agreement with the shaft orientations of lead 5, and it was inserted into the lead concerned via corrosion plate 7.

The end of coil 6 is pinched by that a cross section is fabricated by half-rate arc shape, and the tip part of lead 5 and each of the above-mentioned corrosion plate 7 oppose the tip part and the corrosion plate 7 of lead 5 concerned. In this state, melting coagulation of the lead end face twist of corrosion plate 7 is carried out selectively [spot welding], and the end of the above-mentioned coil 6 is fixed to lead 5. The end of fixed coil 6 has turned to the direction which is substantially in agreement with the shaft orientations of the above-mentioned lead 5.

In contrast, Applicant's claimed invention inhibits the electron emission material from being exhausted over a long period and prolongs the service life of the electrodes because the coil

portion is inserted into a sleeve whereby the electron emission material is deposited on an interior of the sleeve.

Though Sato '542 discloses a discharge lamp where leads are introduced from the both ends of the container, there is no mention of a scattering-prevention member, which is a cylindrical sleeve whose both ends are open or a sleeve lead wire, which is attached to said scattering prevention member at one end and to the heater at the other end.

Furthermore, there is no mention of a connection-reinforcing member that has a first connection member for connecting the first lead wire portion, and a second connection member for connecting the second lead wire portion in Sato '542.

- **Therefore, Sato '542 fails to disclose, teach or suggest a scattering-prevention member, which is a cylindrical sleeve whose both ends are open, for covering surrounding of the coil portion, said both open ends respectively facing the forward end and the rear end of the coil portion.**

McVey '603 does not remedy the deficiencies of Sato '542, as the various features recited above are also absent from McVey '603. For example, Applicant's claimed features of *"scattering-prevention member, which is a cylindrical sleeve whose both ends are open, for covering surrounding of the coil portion, said both open ends respectively facing the forward end and the rear end of the coil portion; a sleeve lead wire, which is attached to said scattering prevention member at one end and to the heater at the other end,"* are neither disclosed nor suggested by McVey '603.

McVey '603 discloses an end closure for a tubular light-transmitting ceramic envelope used in sodium vapor lamps. More particularly, the end closure comprises a ceramic disc fitted into one end of a metal sleeve having a different diameter opening at its opposite end as well as an arc tube inserted therein and hermetically sealed by a ceramic sealing frit. The ceramic disk includes a central opening for passage of a thermionic electrode which is also hermetically sealed with a

ceramic sealing frit. The end closure can only be used for the conventional fluorescent lamp configuration as disclosed in paragraph 4, lines 21-27 of McVey '603.

Though McVey '603 discloses a metal sleeves which form part of the end closures at each end of an arc tube and that serve to maintain the desired lamp operating temperature, there is no mention of a scattering-prevention member, which is a cylindrical sleeve whose both ends are open for covering surrounding of the coil portion wherein the coil has a first lead wire portion and a second lead wire portion that respectively connects the coil portion through the rear end of the coil portion or a sleeve lead wire, which is attached to said scattering prevention member at one end and to the heater at the other end.

Kai '269 does not remedy the deficiencies of Sato '542 in view of McVey '603, as the various features recited above are also absent form Kai '269. For example, Applicant's claimed features of "*scattering-prevention member, which is a cylindrical sleeve whose both ends are open, for covering surrounding of the coil portion, said both open ends respectively facing the forward end and the rear end of the coil portion; a sleeve lead wire, which is attached to said scattering prevention member at one end and to the heater at the other end,*" are neither disclosed nor suggested by Kai '269.

Kai '269 relates to a discharge lamp and a lamp unit used as the light source of an image projection apparatus such as a liquid crystal projector or a digital micromirror device (DMD) projector. A discharge lamp includes a luminous bulb in which a luminous material is enclosed, a pair of electrodes that are opposed to each other in the luminous bulb, and a pair of sealing portions for sealing a pair of metal foils electrically connected to the pair of electrodes. The pair of metal foils have a pair of external leads on the side opposite to the side electrically connected to the pair of electrodes. At least one of the pair of external leads is joined to a lead wire for external connection that is to be electrically connected to an external circuit by the plastic flow of a caulking member.

Though Kai '269 discloses a an external lead that is in point contact with a sleeve and the sleeve is in point contact with the lead wire for external connection, there is no mention of a

scattering-prevention member, which is a cylindrical sleeve whose both ends are open for covering surrounding of the coil portion wherein the coil has a first lead wire portion and a second lead wire portion that respectively connects the coil portion through the rear end of the coil portion or a sleeve lead wire, which is attached to said scattering prevention member at one end and to the heater at the other end.

Since even a combination of the relied upon references would still fail to yield the claimed invention, Applicant submits that a prima facie case of obviousness for claim 1 has not been presented. Applicant also notes that the offered combination appears to be a failed attempt to reconstruct the claimed invention in hindsight, as there is no basis to combine the fluorescent lamp electrode of Sato '542 with the end closure of McVey '603 and with the discharge lamp of Kai '269.

For the reasons stated above, claims 5 and 16 overcome the combination of Sato '542, McVey '603 and Kai '269 because they depend on independent claim 1, as well as for their separately recited patentable distinct features. For example, claim 5 recites "*a forward end of the coil portion is arranged toward an interior of the sleeve without it exceeding an open end face of the sleeve at the forward end side thereof.*"

Accordingly, Applicant respectfully requests that the rejection of claims 1, 5 and 16 under 35 U.S.C. § 103(a) as being unpatentable over Sato '542 in view of McVey '603 and further in view of Kai '269 be withdrawn.

Claims 13-14 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Sato '542 in view of Kai '269. Applicant respectfully traverses this rejection.

Claim 13 recites:

A method for manufacturing a discharge lamp electrode, the method comprising:

a winding step of winding a wire to form a heater, said heater having a coil portion and a first lead wire portion and a second lead wire portion that extend respectively from a rear end of the coil portion;

a connection-reinforcing-member-welding step of welding the first lead wire portion of the heater to a first connection member of a connection-reinforcing member, and of welding the second lead wire portion of the heater to a second connection member of the connection-reinforcing member, said connection-reinforcing member including the first and second connection members with them being integrated with each other by means of a coupling portion;

an application step of applying an electron emission material to the heater in a condition where the heater is held by the connection-reinforcing member;

a sleeve welding step of welding a sleeve lead wire to any one of the first and second connection members and inserting the heater into the inside of a scattering-prevention member, which is a cylindrical sleeve;

a lead-in portion welding step of welding a first lead-in wire to the first connection member and a second lead-in wire to the second connection member; and

a cutting step of cutting off the coupling portion from the connection-reinforcing member to separate the first and second connection members from each other.

Sato '542 fails to disclose, teach or suggest these claimed features.

In particular, Sato '542 fails to disclose, teach or suggest “a sleeve welding step of welding a sleeve lead wire to any one of the first and second connection members and inserting the heater into the inside of a scattering-prevention member, which is a cylindrical sleeve.”

Though, Sato '542 arguably discloses a winding step and a lead-in portion welding step, Sato '542 does not disclose or suggest a sleeve welding step. Indeed, there is no mention of inserting the heater into a scattering-prevention member in Sato '542.

Kai '269 does not remedy the deficiencies of Sato '542, as the various features recited above are also absent from Kai '269. For example, Applicant's claimed features of “a sleeve

welding step of welding a sleeve lead wire to any one of the first and second connection members and inserting the heater into the inside of a scattering-prevention member, which is a cylindrical sleeved,” are neither disclosed nor suggested by Kai ‘269.

Though Kai ‘269 discloses an external lead that is in point contact with a sleeve and the sleeve is in point contact with the lead wire for external connection, there is no mention of a sleeve welding step or inserting the heater into a scattering-prevention member.

Since even a combination of the relied upon references would still fail to yield the claimed invention, Applicant submits that a prima facie case of obviousness for claim 13 has not been presented. Applicant also notes that the offered combination appears to be a failed attempt to reconstruct the claimed invention in hindsight, as there is no basis to combine the fluorescent lamp electrode of Sato ‘542 with the discharge lamp of Kai ‘269.

For the reasons stated above, claim 14 overcomes the combination of Sato ‘542 and Kai ‘269 because it depends on independent claim 13, as well as for its separately recited patentable distinct features.

Accordingly, Applicant respectfully requests that the rejection of claims 13-14 under 35 U.S.C. § 103(a) as being unpatentable over Sato ‘542 in view of Kai ‘269 be withdrawn.

Conclusion

In view of the above amendment and remarks, applicant believes the pending application is in condition for allowance.

This response is believed to be a complete response to the Office Action. However, Applicant reserves the right to set forth further arguments supporting the patentability of their claims, including the separate patentability of the dependent claims not explicitly addressed herein, in future papers. Further, for any instances in which the Examiner took Official Notice in the Office Action, Applicant expressly does not acquiesce to the taking of Official Notice, and respectfully

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request that the Examiner provide an affidavit to support the Official Notice taken in the next Office Action, as required by 37 CFR 1.104(d)(2) and MPEP § 2144.03.

Extensions of time

Please treat any concurrent or future reply, requiring a petition for an extension of time under 37 C.F.R. §1.136, as incorporating a petition for extension of time for the appropriate length of time.

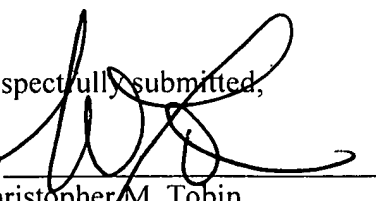
The Commissioner is hereby authorized to charge all required fees, fees under 37 C.F.R. §1.17, or all required extension of time fees.

Fees-general authorization

The Commissioner is hereby authorized to charge any deficiency in fees filed, asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm).

If any fee is required or any overpayment made, the Commissioner is hereby authorized to charge the fee or credit the overpayment to Deposit Account # 18-0013.

Dated: November 10, 2009

Respectfully submitted,

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